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Papillary fibroelastoma in the left ventricle

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ABSTRACT

We present a 61-year-old woman with a recent transient ischemic attack who presented with presyncope and was ultimately found to have a papillary fibroelastoma at the apex of her left ventricle. She underwent minimally invasive excision of the tumor.

KEYWORDS Cardiac magnetic resonance imaging; cerebrovascular accident; left ventricular mass; papillary fibroelastoma; transient ischemic attack

Papillary fibroelastoma is a primary cardiac tumor that most often is located on a cardiac valve. Papillary fibroelastoma has been associated with thromboembolic events, including stroke and myocardial infarction. We present a woman with a recent transient ischemic attack who was found to have a papillary fibroelastoma located at the apex of her left ventricle.

CASE REPORT

A 61-year-old woman with known hypothyroidism and schizoaffective disorder presented to the emergency department with 2 days of intermittent palpitations associated with dizziness and lightheadedness. The episodes lasted for 20 to 30 minutes, were brought on by minimal activity, and resolved with rest and meditation. She had a recent transient ischemic attack, with slurred speech and facial weakness lasting for several minutes, 6 months earlier. Her blood pressure was 148 mm Hg. A comprehensive metabolic panel, complete blood count with differential, serial troponin ×3, and thyroid-stimulating hormone level were normal. The electrocardiogram showed normal sinus rhythm, left ventricular hypertrophy, and ST depressions in V4/V5/V6 and II/III/aVF. An echocardiogram demonstrated a normal ejection fraction and a mobile pedunculated 8 mm mass in the apex of her left ventricle *(Figure 1a)*. Intravenous heparin infusion was initiated. Left-sided heart catheterization demonstrated no coronary artery disease. Cardiac magnetic resonance imaging showed a water-dense mass *(Figure 1b)*. The mass was excised via cardioscopy through a left atrial incision *(Figure 1c)*.

DISCUSSION

Papillary fibroelastomas comprise about 10% of benign cardiac tumors.[1] These tumors are almost always on a cardiac valve;[2] the location of the tumor at the apex of the left ventricular cavity in our case is unusual. *Table 1* describes other reports in the literature of the tumor in this rare site.[3–15] This avascular tumor is covered by endothelium surrounding a layer of elastic tissue, which in turn covers fibrous tissue.[16] These tumors are pedunculated and mobile.[17] Grossly, the appearance has been compared to a "sea anemone," and the tumors are covered by papillary fronds.

In an analysis by Gowda et al, stroke or transient ischemic attack was found to be the most common presentation of 725 patients with the tumor, having been reported in 120 patients.[2] Papillary fibroelastoma emboli have also been identified in the coronary arteries of patients at autopsy,[18] and thrombus itself can be found on the surface of these tumors. Therefore, it has been suggested that one conservative therapeutic option for patients with known papillary fibroelastoma could be systemic anticoagulation rather than surgical excision of their tumor.[16] Tamin et al reviewed 511 patients at their institution with likely papillary fibroelastoma on echocardiography[19]; 185 of those patients had surgical excision of the tumor and were confirmed as having had papillary fibroelastoma by histology. The risk of stroke was 2% at 1 year and 8% at 5 years for the surgical group compared to 6% and 14% in the nonsurgical group. There was also no difference in stroke risk between nonsurgical patients treated with anticoagulation, antiplatelet medication, or neither. The statistical significance of this difference was not evaluated in

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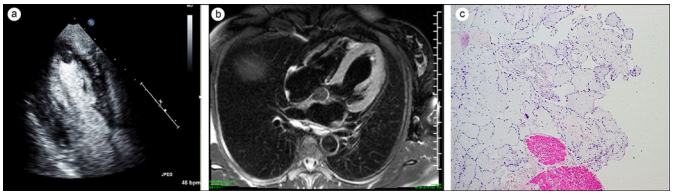

Figure 1. (a) Apical two-chamber transthoracic echocardiographic view of the left ventricle with contrast demonstrating a spherical, pedunculated apical mass. **(b)** Four-chamber view of the heart on cardiac magnetic resonance imaging showing the same mass at the apex of the left ventricle, hyperintense on T2-weighted imaging. **(c)** Tumor histopathology. The pink area is the underlying endomyocardium. The avascular papillary structures are lined by endothelial cells. The papillary cores contain a proteoglycan-rich stroma. Hematoxylin and eosin stain, 40×.

Table 1. Reported cases of apical left ventricular papillary fibroelastoma

	Year of publication	Presenting with cerebrovascular accident
Tkebuchava et al[3]	1997	No
Kaneko et al[4]	2006	No
Rodríguez-Ortega et al[5]	2007	No
Company Campins et al[6]	2007	Yes
Palecek et al[7]	2008	No
Domenech et al[8]	2010	Yes
Samuels et al[9]	2012	No
Toeg et al[10]	2012	Yes
Hyun et al[11]	2013	No
Akagi et al[12]	2013	No
Ariyoshi et al[13]	2014	No
Tanaka et al[14]	2018	No
Nakai et al[15]	2018	No

the study, nor does there appear to be a controlled investigation in the literature comparing a surgical and nonsurgical treatment approach.

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